PATENT
Attorney Docket No. JACOB100/F7-5537

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

James D. Jacobson

Serial No.: 09/457,173

Filed: December 8, 1999

Group Art No.: 1723

Examiner: Sun U. Kim

For: MICROPOROUS FILTER MEMBRANE, METHOD OF MAKING MICROPOROUS FILTER MEMBRANE AND SEPARATOR EMPLOYING MICROPOROUS FILTER MEMBRANES

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First Named Inventor	James D. Jacobson
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm *or* Individual name	Cook, Alex, McFarron, Manzo, Cummings & Mehler, Ltd. Gary W. McFarron, Esq. (Reg. No. 27,357)
Signature	Gary W. McFarron
Date	April 29, 2002

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NAME Jeannie Rapstad

SIGNATURE Jeannie Rapstad

13/RW 5/3/02 (N.E.)

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RESPONSE TO OFFICE ACTION OF JANUARY 29, 2002

This is in response to the Office Action of January 29, 2002, which rejected all of the pending claims 1-5, 14-30 and 102 under 35 U.S.C § 112 and 35 U.S.C. § 103.

It is recognized that the above-identified Office Action was made "Final," and that an Applicant's opportunity to respond after a final rejection is limited. However, it is respectfully believed

misunderstanding as to the meaning of the term "monolithic," as found in the pending claims, and that when the misunderstanding is corrected, it will be seen that the pending claims are not disclosed or suggested in the cited prior art, and that the Examiner will deem the claims to be allowable.

The meaning of "monolithic" is fundamental to the rejection of the pending claims under 35 U.S.C. § 112 and § 103. In the present application, "monolithic" is consistently defined as including either (1) a membrane in which the filter and support are made from a single sheet of film or (2) a membrane in which the filter and support begin in different films that are cured together to chemically bond, or cross-link, to form a single structure without a discernible line of distinction between them.

As set forth on page 16, lines 12 -15, of the specification, for example, it is indicated that the monolithic filter and support layers of the claimed membrane "may be formed from a single polymeric film or from different films that are joined together to form a monolithic filter membrane." Beginning at page 16, line 26 the specification further states that "the filter membrane may be made monolithic by forming the filter and support layers from a single film or from separate films of the same or sufficiently compatible materials to allow the layers to become monolithic when bonded together. For example, the films may be non-fully cured when the pores and support structures are formed, and then cured

together to form a monolithic membrane."

A more specific example of two layers which are joined in a non-fully cured state and then cured to form a monolithic filter membrane is described at Page 21, Line 32: "To form the monolithic filter membrane, the first and second polyimide layers, which are not fully cured, are cured together to remove any interface therebetween and create the monolithic filter membrane, which is then removed silicon wafer or other substrate" [emphasis added].

Such a process is described more fully at page 36 beginning at line 10: "The remaining [not fully cured] polyimide layers are then subjected to a final cure at a full bake temperature such as 400°F for a period of hours to fully cure the polymeric material. Because the filter and support layers were not previously fully cured and are of compatible polymeric materials, during the curing process the layers chemically bond or cross link, and the previous line of distinction between the layers disappears, and a monolithic filter membrane is formed as best seen in Figure 12g."

Accordingly, a "monolithic" membrane of the present invention is one in which the filter and support layers appear to have been made from a single sheet or film and have no discernible line of distinction between them -- because, for example, they are actually formed from the same sheet or film in the first place or they are formed of separate sheets or layers which are of the same or of sufficiently compatible materials that when joined, such as in a

non-fully cured state and subsequently cured, they chemically bond or cross-link to form a single monolithic membrane with no discernible line of distinction to the ordinary observer.

This may be contrasted with the filter structure shown in the Ishii Patent No. 5,275,725 in which the filter is clearly made of separate and distinct layers with discernible lines of distinction. As described in the Ishii patent, the filter membrane is made of several layers that are adhesively bonded or heat fused (either of which would presumably leave a line of distinction) -- an interwoven core, non-woven random fiber mat intermediate layers and a polymeric outer layer. There is no suggestion in Ishii of making that filter structure from the same original sheet or film or from separate films that are joined in a non-fully cured state and then fully cured to form a single filter membrane and support structure with no discernible line of distinction, for example, as a result of chemical bonding or cross-linking of the material of the two layers.

Applicant regrets any confusion as to its previous argument distinguishing the Ishii patent, but believes that the Examiner has taken Applicant's statement out of context. At page 3 of the prior Response, leading directly into the language cited in the Office Action as being inconsistent, Applicant stated:

> "Unlike the present invention, the Ishii patent apparently contemplates a separate, pre-formed and cured layers that are

brought together and then fused or bonded together. In the present invention the filter and support layers may be formed from the same original sheet of material or, alternatively, may be formed in two or more separate layers that are brought together before curing to provide, during curing, a chemical cross-linking with no discernible line of distinction. In either case the resulting membrane appears, to ordinary observation, to have been fashioned from a single sheet or membrane."

Based on this point Applicant argued that Ishii does not disclose or suggest any such structure.

Restating Applicant's prior argument to avoid uncertainty: it is respectfully submitted that no one would confuse the Ishii structure, having an inner woven core, non-woven random fiber mat intermediate layers and a polymeric outer layer adhesively bonded or fused together, with a filter structure that appears to have been made from the same original sheet or film. The essence of a monolithic membrane is simply absent in the Ishii patent.

It is respectfully submitted that Applicant has been consistent in both the specification and responsive arguments regarding "monolithic" and that, as defined, the claimed membrane with monolithic filter and support layers is not shown or suggested in the prior art relied upon by the Examiner.

For the above reasons, it is respectfully requested that the

claims be reconsidered and allowed.

Respectfully submitted,

Date: April 29, 2002

By: Gary W. McFarron

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